REMARKS

Following entry of the above amendments, claims 2-24 will be pending. Of these, claims 16-22 stand withdrawn from consideration. Claim 7 has been amended to remove an instance of the word "the" in the last clause, without change in scope of the claim. (This word was inadvertently added, without being properly noted, in the previous list of claims.) Claim 12 has been amended for clarity without change in scope.

Premature Finality

MPEP 706.07 makes clear that a final rejection is not proper where the Examiner switches from one set of references to another in rejecting claims of substantially the same subject matter in successive actions. According to MPEP 706.07(a), an action should not be final "where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement."

In the Reply filed on January 5, 2005, claims 2 and 7 were re-written in independent form, without change in scope. In the present Action, these claims are subject to new grounds of rejection, with claim 2 rejected as anticipated by U.S. Patent 5,175,393 ("Andersson"), and claim 7 rejected as obvious over Andersson in view of U.S. Patent No. 1,879,840 ("Brandt"). Neither of these references was cited by the Applicant. Rather, both were previously cited by the Examiner. Thus, the Examiner is switching from one set of references to another in rejecting claims of the same scope, which is not allowed in a final Action under MPEP 706.07. Because the claims were not changed in scope and because the Examiner's rejections are not based on newly disclosed prior art, the finality of the rejection is premature and should be withdrawn. Since the action should not have been a final Action the amendments to the claims and the arguments presented below should be considered.

Claim Rejection – 35 U.S.C. § 112

Claims 7-9 stand rejected as indefinite for lack of proper antecedent basis. Claim 7 has been amended to render the issue moot. Withdrawal of the rejection is respectfully requested.

Claim Rejections – 35 U.S.C. § 102

Claims 2-5, 12-15 stand rejected under 35 U.S.C. 102(b) as being anticipated by Andersson. Withdrawal of the rejections is respectfully requested for at least the following reasons.

Andersson describes a launch unit for a mortar projectile, which causes the launch unit to be automatically removed from the barrel after the projectile is launched. Col. 1, lines 24-27. According to Andersson, the launch unit 6 consists of individual components that are rigidly attached to one another. Col. 2, lines 40-46. The launch unit also contains a girdle 24 that engages the rear end of a sustainer 5, which mates to a projectile body 4 during launch. Col. 3, lines 18-26. On firing the projectile, two consecutive gas stages are formed by the break zones 11, 27, which are designed to break at different predetermined pressures. Col. 3, lines 31-43. In the first stage, a piston 16 forces the girdle 24 of the launch unit 6 against the sustainer 5, causing the sustainer 5 to dock with the projectile body 4 via a shock sensitive docking mechanism (not shown). Col. 3, line 65 – Col. 4, lines 17. During the second stage, the projectile 4, with the sustainer 5 attached, is launched from the barrel. Col. 4, lines 17-30. The residual pressure from the launch causes the girdle 24 to separate from the sustainer 5. Col. 4, lines 46-50. The launch unit 6 is then thrown from the barrel, separate from the projectile/sustainer. Col. 4, lines 54-56. Thus, Andersson does not show a propelling charge holder that is separable from the projectile during flight.

Claim 2 recites a projectile that includes a projectile body coupled to propelling charge holder segments that are separable during flight of the projectile. The components identified by the Examiner as the propelling charge holder (5, 25, 24, 6, 7) are not separable from one another during flight. In Andersson, the launch unit 6 includes the cartridge tube 7 and the girdle 24. The sustainer 5 is attached to the girdle 24 prior to launch via a conical mating shoulder 25. Col. 3, lines 18-25. The second phase of the launch causes a pressure buildup in a number of pockets in the outer lip 24a of the girdle 24. Col. 4, lines 40-43. As the projectile exits the barrel, these gas pockets are released so abruptly that they cause the girdle to break from the sustainer and/or projectile. Col. 4, lines 46-50. Thus, in Andersson, the sustainer 5 separates from the entire launch unit 6, including the cartridge tube 7 and the girdle 24, during the "barrel phase" of the launch rather than during the flight of the projectile. There also is no indication that the sustainer 5 and the projectile 4 separate from one another during flight of the projectile. As such, claims 2-5 are patentable because Andersson does not teach a projectile with propelling charge holder segments that separate during flight of the projectile.

Claim 4 further recites propelling charge holder segments that have holes therein. Andersson has holes 7a in the cartridge tube 7, which is a single, unitary piece that is rigidly connected to other components of the launch unit 6. Col. 2, lines 10-25 and lines 40-47. Andersson, however, does not disclose holes in multiple propelling charge holder segments, and therefore claim 4 is patentable over Andersson for a further reason.

Claim 12 recites a projectile that includes a projectile body coupled to propelling charge holder segments where the propelling charge holder segments have a curved free shape. As claimed, an inward radial force is applied to the propelling charge holder segments by the propelling charge increments to combine them and form the propelling

charge holder. In Andersson, the external propellant charges 10 are placed around the cartridge tube 7, which is a single, unitary component of the launch unit 6. Thus, the external propellant charges 10 (taken as corresponding to the increments) do not operate to combine the segments identified by the Examiner as the propelling charge holder (5, 25, 24, 6, 7). The conical shoulder 25 forms a seal with the girdle 24 during the barrel phase. Col. 4, lines 31-39. The cartridge tube 7 is part of the launch unit 6, and is rigidly attached to the other components of the launch unit via threaded joints 15, 18. Col. 1, lines 40-46. Therefore the increment charges 10, which only surround the cartridge tube 7, do not combine propelling charge holder segments to form the propelling charge holder. Claims 12-15 are patentable over Andersson because Andersson does not teach each and every feature of claim 12.

Dependent claim 13 recites a projectile with fins hingedly coupled to the projectile body wherein the retracted fins supply at least part of the inward radial force to combine the propelling charge holder segments to form the propelling charge holder. Andersson discloses but does not illustrate foldable wrap-around stabilizing fins on the projectile that deploy after the projectile leaves the barrel. Col. 1, line 67 – Col. 2, line 2. There is no indication that Andersson's stabilizing fins provide at least part of an inward radial force to combine propelling charge holder segments since the components of the launch unit 6 are connected through threaded joints 15, 18. Therefore, claim 13 is patentable over Andersson for at least this additional reason.

Dependent claim 14 additionally recites an igniter holder with an annular flange that supplies at least part of the inward radial force to the propelling charge holder segments to combine them to form the propelling charge holder. Andersson does not teach or suggest this additional feature. Andersson discloses an ignition device 9 that is not described in detail, but includes an ignition charge and primer. Col. 2, lines 15-17.

The portion of Figure 2, identified by the Examiner as the "annular flange" does not appear to supply at least part of an inward radial force to combine propelling charge holder segments. In fact, the ignition device appears only to be in contact with the cartridge tube 7. Because the cartridge tube 7 is a single, unitary piece, the "annular flange" cannot assert an inward radial force on multiple propelling charge holder segments. Thus, Andersson does not disclose an all of the features of claim 14 and claim 14 is patentable over Andersson for an additional reason.

Claim 15 recites a projectile where the hooked ends of the propelling charge holder segments engage a flange on an aft protrusion of the projectile body where the removal of the inward radial force causes the hooked ends to disengage from the flange. In Andersson, the girdle 24 has an outer lip 24a, an inner lip 24b, and an inside 24c. The inside 24c of the inner lip 24b forms a seat for mating the girdle to the conical shoulder 25 of the rear end of the sustainer (or 25a of the projectile). Because the inside 24c is not a hooked end and the outer lip 24a does not engage the rear end of the sustainer or projectile, claim 15 is patentable over Andersson for an additional reason.

Claim Rejections – 35 U.S.C. § 103

Claims 6-11, 23 and 24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Andersson in view of Brandt.

Brandt discloses a bladed projectile where the rear of the projectile is equipped with blades that are moveable from a folded position to an unfolded position. Page 1, lines 60-72. The blades 12 are retained in a folded position against the body of the projectile 1 with forward clips 33. Upon issuing from the launching tube, the blades move from the position shown in Figure 3 (folded) to that of Figure 2 (unfolded). Page

2, lines 115-119. Brandt discloses a combination of both fixed and hinged blades coupled to the projectile body forward of the propelling charge holder. As depicted in Figure 5 of Brandt, each pivoting blade at the forward end of the propelling charge holder is pivoted on a shaft 19 carried by a fixed blade 20. Page 2, lines 120-129. Neither Andersson nor Brandt teach or suggest all of the elements of the claimed projectile either alone or in combination.

Claim 6 depends from claim 2 and recites a projectile with fins hingedly coupled to the projectile body forward of the propelling charge holder. Neither Andersson nor Brandt disclose a propelling charge holder that is separable during flight, as is recited in claim 2. Thus, because Andersson and Brandt do not teach or suggest all of the features of claim 2, claim 6 is patentable over both references, either alone or in combination.

Claim 7 recites a projectile that includes, *inter alia*, fins, where the fins press against the propelling charge holder segments of the propelling charge holder. In both Andersson and Brandt, the propelling charge holder does not separate during the flight of the projectile. The charge holder in Andersson separates from the launch unit when the projectile exits the barrel. The charge holder in Brandt is rigidly attached to the projectile body and also does not detach during flight. Further, neither Andersson nor Brandt teach or suggest a projectile where the fins press against propelling charge holder segments. Andersson discloses foldable stabilizing fins mounted to the projectile body, but not fins that press against multiple propelling charge holder segments. Similarly, the blades in Brandt do not press against multiple propelling charge holder segments. Thus, for at least these reasons, Andersson and Brandt do not teach or suggest all of the features of claim 7, and claims 7-11 are patentable over both references, either alone or in combination.

Claim 8 recites a projectile wherein a center portion of the propelling charge holder segments is closer to a centerline of the projectile than the ends of the propelling charge holder segments. Neither Andersson nor Brandt disclose this element. In Andersson, the sustainer 5 and shoulder 25 do not have a central portion that is closer to the centerline of the projectile than the ends of the same segments. The sustainer is not described in detail but appears to have a uniform cross-section except for the conical shoulder 25, which is tapered at one end. The tapered shoulder 25 provides at least one end of the sustainer that is closer to the centerline of the projectile than a middle portion of the sustainer. The propelling charge holder in Brandt also has a uniform cross-section and therefore fails to disclose the claimed feature. Therefore claim 8 is patentable over both references because neither Andersson nor Brandt disclose all of the features of the claimed invention, either alone or in combination. Claim 9 recites a projectile where one end of the propelling charge holder segments is a hooked end that engages an aft protrusion of the projectile body. As discussed above, the outer annular lip 24a of the girdle 24 in Andersson does not engage an aft protrusion on the projectile body. Instead, the inside 24c of the inner lip 24b forms a seat for mating the launch unit 6 to the conical shoulder 25 of the rear end of the sustainer (or 25a if the launch unit is mated with the projectile). Because there is not a hooked engagement between the launch unit and the projectile body, claims 9-11 are patentable over both Andersson and Brandt for another reason.

Claim 10 recites a projectile in which an aft protrusion of the projectile body includes a flange that is engaged by the hooked ends of the propelling charge holder segments. Neither Andersson nor Brandt disclose a flange on an aft protrusion of the projectile body. Andersson discloses a conical shoulder 25 for mating with the inside 24c of the inner lip 24b of the girdle 24, but does not teach or disclose a flange. Brandt also does not disclose or suggest a flange on an aft protrusion of the projectile body.

Since neither Andersson nor Brandt teach or suggest all of the features of claim 10, claim 10 is patentable over both references for still another reason.

Claim 11 recites a projectile with a notch in the fins into which the hooked ends of the propelling charge holder segments partially protrude when the fins are retracted. Andersson does not teach blades or fins that have notches into which hooked ends of propelling charge holder segments partially protrude. Brandt also does not disclose or suggest notches in the blades. The forward clips of Brandt do not engage the hooked ends of the propelling charge holder segments when the fins are retracted. Thus, neither Andersson nor Brandt disclose or suggest all of the features of claim 11, either alone or in combination and claim 11 is patentable over both references for still another reason.

Claim 23 recites a projectile where the blades of the fins have a notch into which parts of the propelling charge holder segments protrude when the fins are retracted. As discussed, neither Andersson nor Brandt disclose fins with a notch. Thus, claims 23 and 24 are patentable because neither Andersson nor Brandt teach or suggest all of the features of claim 23, either alone or in combination.

Claim 24 depends from claim 23 and is also patentable for the additional reasons discussed above with regard to claim 2. Namely, Andersson does not teach or suggest propelling charge holder segments that are detachable during flight of the projectile. As such, claim 24 is patentable over Andersson and Brandt because both references fail to teach or suggest all of the features of claim 24.

Conclusion

For at least the foregoing reasons, withdrawal of the final claim rejections is respectfully requested, in which event this application would be in condition for allowance. Should the Examiner believe that a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

It is believed that no fee is required for this filing. However, if a fee is required, please charge the fee to Deposit Account No. 18-0988, Order No. RAYT.P0223US.

Respectfully submitted,

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